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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,199

09/21/2005

Sergey Anatoliyovich Piletsky

P08541US00/BAS

8648

881 7590 05/04/2009

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EXAMINER

MENON, KRISHNAN S

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

05/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,199	Applicant(s) PILETSKY ET AL.	
	Examiner Krishnan S. Menon	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-15 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) 8-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1, 3-15 and 17-21 are pending as amended 4/24/09 in the RCE. Claims 8-15 and 17 are withdrawn from consideration.

Claim Rejections - 35 USC § 103

Claims 1,3-7 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murray (US 2003/0113234) and/or Wu (US 6,039,872) in combination with Singh et al (US 6,582,971).

Murray teaches a method of making a substrate selective membrane by polymerizing a mixture comprising a template (iron vinyl benzoate complex), a functional monomer (eg. styrene), a crosslinker (eg. divinyl benzene), a pore former (eg. polyester), a plasticizer (nitrophenyl octyl ether: see working examples), and initiator - see paragraph 0016. After the membrane is formed, the ferric cation and the polyester are removed to form for the pores.

Murray does not teach the specific template compounds listed in the claims.

Wu teaches a method of making a crosslinked hydrophilic membrane using mono and diacrylates with initiator and pore forming agents. This reference teaches the base method of making the membrane such as disclosed in applicant's working examples, without the template compounds. See abstract and examples.

Singh teaches making membranes with imprinted polymer composites. Singh at column 1, line 53 – column 2, line 4 teaches:

“Molecular imprinting of synthetic polymers is a process where functional and cross-linking monomers are copolymerized in the presence of the target analyte, which acts

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as a molecular ~~template~~. Before polymerization, the functional monomers either form a complex with the ~~analyte~~ via non-covalent interactions, or are covalently coupled forming a polymerizable derivative of the ~~template~~. After polymerization, the functional groups of the monomers are held in position by the highly cross-linked polymeric structure. Subsequent removal of the ~~template~~ by solvent extraction or chemical cleavage reveals binding sites that are complementary in size and shape to the analyte. In this way, a molecular memory is introduced in the polymer, which is now capable of rebinding the analyte with very high specificity.”

And in column 8, lines 4-23:

“Alternatively, the ~~immobilized~~ polymer composites can also be cast as a ~~membrane~~ or coated onto existing membranes. The resulting separation membranes are highly specific for the target biomolecule.”

See the claims of Singh, particularly claims 1 and 3, which describe the same template materials as claimed by the applicant. Singh does not teach the specifics of making the membrane as claimed.

It would be obvious to one of ordinary skill in the art to combine these references to arrive at applicant's invention, to make membranes with specific and complementary binding sites for binding analytes as taught By Singh. See KSR Int'l. v. Teleflex Inc., 127 S. Ct. 1727, 1732, 82 USPQ2d 1385, 1390 (2007). “it is commonsense that familiar items have obvious uses beyond their primary purposes, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle”. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”

It would also be obvious to one of ordinary skill in the art to combine the teaching of Wu or Murray with the teaching of Singh to make target-specific membranes as suggested by Singh – see column 8, lines 20-23 of Singh.

All the references teach that the removal of the imprint template provides holes with functional groups complementary to the template.

Response to Arguments

Arguments are not persuasive. There is a very strong prima facie case of obviousness with suggestion from the Singh reference. Applicant's arguments only attack the references individually, and provide no substantive reasoning or secondary evidence for patentability.

Allowable Subject Matter

Claim 1 would be allowable if applicant were to further limit the template molecules to atrazine, triazine and ephedrine, as presented in the working examples.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/
Primary Examiner, Art Unit 1797